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ABSTRACT

A sample of 1,500 students in grades K-3 were selected from 80 Jordanian schools in a study of aural vocabulary scores. This study followed a pilot study in 1980 of an Arabic translation of the Peabody Picture Vocabulary Test with Arabic-speaking children with limited English proficiency in the Dearborn, Michigan, public schools. The 1982 standardization of the Arabic Picture Vocabulary Test (APVT) provided an unusual opportunity to compare the academic performance of males and females in Jordan, and the sample was designed to provide a broad socioeconomic representation of Jordan. Data indicated that of the nine comparisons performed, six showed males scoring higher, and three showed females scoring higher on the APVT. These findings are compared with other studies and other orally administered vocabulary tests. Contains 16 references. (LB)

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GENDER DIFFERENCES IN AURAL VOCABULARY OF ELEMENTARY SCHOOLCHILDREN IN JORDAN

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Gender Differences in Aural Vocabulary Scores of Elementary Schoolchildren in Jordan

Salma B. Khammash

Summary

This paper discusses gender differences in aural-vocabulary scores of elementary schoolchildren in Jordan.

Following a pilot study of an Arabic translation of the Peabody Picture Vocabulary Test Revised (PPVT-R) with Arabic-speaking children with limited English Proficiency (LEP) in the Dearborn Public schools, Dearborn, Michigan in 1981, the present writer proceeded to reconstruct the PPVT-R in Arabic for use with Arabic-speaking children between the ages of five and 10 years.

The resulting Arabic Picture Vocabulary Test (APVT) was then standardized in the spring of 1982 on samples of Arabic-speaking students in schools throughout Jordan. The sampling plan was based on population data and the educational survey of 1980, by the Jordanian Ministry of Education. The stratification criteria used to ensure adequate representation of the population included: (1) grade and gender balance, (2) school and geographic representation, and (3) appropriate socio-economic representation.

The sample of 1500 students, grades K-3, stratified by gender and grade were randomly selected from 80 Jordanian schools throughout the country. Schools were selected to be representative of their geographic locations and type (publicor government, private and UNRWA). Overall, there was 52 government (public schools, 16 private schools including kindergarten schools, and 12 UNRWA (United Nations Relief Works Agency) schools. In all cases, except the kindergarten, equal number of girls' and boys' schools participated in the standardization Activities.

The standardization of the Arabic Picture Vocabulary Test (APVT) has provided an unusual opportunity to compare the academic performance of females and males in a carefully selected, broadly representative sample of elementary schoolchildren in Jordan. Such analyses are of interest even through most items showing bias toward gender in the item-analysis and calibration had been eliminated or modified.

Means and standard deviations of raw scores were determined for males and females in each of the nine groups tested in the

standardization program from ages 5 through 9 years. For each group ~t~ tests were computed to evaluate the observed differences between mean raw scores for both sexes in the study.

The results indicated hat of the nine comparisons performed, six showed that males scoring higher, and three showed females scoring higher. For only one of the six comparisons showing males scoring higher was the difference significant beyond the .05 level.
This was for six year old students. On the other hand, 8 year old females in the sample scored higher than males the same age (t= 2.0, significant at .05 level).

Despite the lack of required statistical significance in but one where the males scored higher, the general trend of males scoring higher on the APVT was meaningful. There were however, some significant difference between the standard deviations for both sexes, but these were not consistent and appeared to be a function of the variability of scores relative to the mean. Similar differences were reported by Brimer (1969),and Robertson and Eisenberg (1981). Furthermore, the results observed in the present analysis for ages 5 through 9 years agree generally with the findings of Maccoby & Jacklin (1974 in their comprehensive survey of research findings on sex differences in verbal abilities.

In addition to age, means and standard deviations of raw scores were determined separately by grade, and type of school for both sexes in each of the four grades (k-3) -- government, private and UNRWA.

In general, the results of this investigation offer preliminary support to the literature on orally administered vocabulary tests which confirm that male superiority is characteristically found for ages five through ten years (Dunsdon and Roberts, 1957; Templin, 1957, Brimer, 1969, Milgram, 1971; Maccoby and Jacklin, 1980;; Robertson and Eisenberg, 1981.)

Further investigations are clearly needed to determine just how consistent the APVT will be with measures of verbal comprehension and achievement for different samples of Arabic-speaking LEP elementary schoolchildren in the United States and other Arabic-speaking countries.

Gender Differences in Aural-Vocabulary Scores of Elementary Schoolchildren in Jordan

Salma B. Khammash

This paper discusses gender differences in aural-vocabulary of elementary schoolchildren in Jordan.

Following a pilot study of an Arabic translation of the Peabody Picture Vocabulary Test (PPVT, Dunn, 1965) with Arabic-speaking children with limited English Proficiency (LEP) in the Dearborn Public Schools, Dearborn, Michigan in 1980 in which the results indicated that the PPVT was potentially a useful instrument with Arabic-speaking LEP students; the present writer then proceeded to reconstruct the Peabody Picture Vocabulary Test-Revised (PPVT-R, 1981, with Dunn's permission) in Arabic for use with Arabic-speaking children in the elementary schools. One test resulted, the Arabic Picture Vocabulary Test (APVT), covering the age range of 5 to 10 years (Khammash, 1986).

METHODS

Standardization of the APVT in Jordan.

The APVT was standardized in the spring of 1982 in Jordan, one year after the item validation program was carried out, with the cooperation of the Jordanian Ministry of Education. Jordan was chosen as the testing site because of the large population of Arabic-speaking children in the United States who come from the general demographic area of Jordan and its neighbors, where

the speech (terminology and vocabulary closes to the Modern Standard Arabic) would fit the experience of the LEP Arab child in U.S. public schools. Also, Jordan was accessible to the project, and a suitable large variety of Arab communities and their respective dialects of Arabic are present (Egyptian, Iraqi, Lebanese, Palestinian, Syrian, Yemeni, etc.). Basically, we wished to determine whether the adapted test items adequately discriminated among Arab students at each of the targeted age levels.

The sampling plan was based on population data from the 1973 Census and the Jordanian Ministry of Education - Educational Survey 1980. The stratification criteria used to ensure adequate representation included: (1) grade and gender balance, (2) appropriate geographic and school representation, and (3) appropriate socioeconomic representation.

Student Sample.

A representative sample of 1500 students, grade K-3, stratified by sex and grade were selected from 80 Jordanian schools throughout the country. The selected schools were chosen to provide a 50 percent overlap with the schools which participated in the validation program earlier. The distribution of the standardization sample by grade and gender appears in Table 1, page 9.

The plan was to develop norms within age levels at six-month intervals. Normally, we would have sampled an equal number

at each age level. However, this was not feasible due to the involved governmental permission process. Nevertheless, the school sampling process did yield age groups sufficiently large to compute reasonably stable norms (N=100), and a fairly close balance between girls and boys, as shown in Table 2, p. 9.

Schools and Geographic Locations.

Schools were selected to be representative of their geographic locations and type (government, private, UNRWA*). Overall, there were 52 government (public) schools, 16 private schools, including kindergarten schools**, and 12 UNRWA schools for a total of 80 schools. In all cases, except for the kindergarten, equal number of girls' and boys' schools were located in and around Amman, the capital city of Jordan, (24 government, 10 private, and 10 UNRWA elementary schools). The remaining 30 elementary schools (28 government, 2 UNRWA) were located in towns and villages outside Amman -- in the North, South and Southwest, and Center of Jordan.

The sample was designed to provide a broad socioeconomic representation of Jordan. Occupation of the major wage earner in the family was used to ensure appropriate representation in the standardization sample.

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* United Nations Relief Works Agency (UNRWA).

** All Kindergarten schools were private, as there were no government kindergartens in Jordan at the time the data were gathered.

At each school, students were randomly selected within the predetermined categories of grade, gender and socioeconomic status. Trained examiners, men and women from the Ministry of Education, tested each student in the sample individually.

RESULTS

Standardization of the Arabic Picture Vocabulary Test (APVT) provided an unusual opportunity to compare the performance of females and males in a carefully selected, broadly representative sample of elementary schoolchildren in Jordan.

Means and standard deviations of raw scores were determined for females and males in each of the nine age groups in the standardization program for ages five through ten years. For each group ˜t˜ tests were computed to evaluate the observed differences between mean raw scores for both sexes in the study. The data in Table 3, p. 10, indicated that of the nine comparisons performed, six showed males scoring higher, and three showed females scored higher on the APVT. For only one of the six comparisons showing males with higher scores was the difference significant beyond the .01 level. This was for students six years of age ($t= 2.3$, $p\leq .01$). On the other hand, eight year-old females in the sample scored higher than eight year-old males ($t= 2.0$, $p\leq .05$). There were, however, some significant differences between standard deviations for both sexes, but these were not consistent, and appeared to be a function of the variability of scores relative to the mean.

Despite the lack of required statistical significance in all but one where the males scored higher, the general trend of male performance on the APVT is similar to the results obtained by Robertson and Eisenberg (1981) for the standardization sample on the PPVT-R. Similar results were also reported by Brimer (1969) for British children ages six to eleven years tested with English Picture Vocabulary Test (EPVT), a derivative of the PPVT. Furthermore, the results shown in the present study for children ages five through ten years generally agree with the observations Maccoby and Jacklin (1980) had reported in their comprehensive survey of research findings on sex differences in verbal abilities.

In addition to age, means and standard deviations of raw scores were determined separately by grade, and type of school for both sexes in each of the four grades (K-3), and three school-type (government, private and UNRWA). All of the differences between means were in favor of the boys in grades 1-3, and only at the kindergarten level the differences were significant at the .05 level (Table 4, p. 11). Also, significant differences were observed between both sexes where female and male mean scores were compared by grade and school-type. The results in Table 5, p. 12, showed that in the private and UNRWA schools boys in the first and third grades scored higher than girls, while in the government schools female students outperformed males for the same grades.

DISCUSSION

The consistent direction of differences in favor of boys appeared to be an unusual feature of the APVT, and generally seemed to be in conflict with the familiar linguistic superiority of girls. However, close scrutiny of the literature on orally administered vocabulary tests confirms that male superiority is characteristically found. Dunsdon and Frazer-Roberts (1957), in their study of four orally-administered vocabulary tests, reported in favor of boys at every age level from five through twelve. They did not seem to regard the oral administration as being the critical feature associated with the difference. Templin (1957), in her study of language skills in children reported ~the higher scores of the boys in the six to eight year old range is particularly apparent in the vocabulary of recognition. At these ages it is the boys who occasionally receive higher scores on verbalization and on the more difficult articulation measures. Nevertheless, with the exception of the recognition vocabulary scores, girls obtain the greater proportion of higher scores in each area.~ Similar evidence of male outscoring female on aural or listening vocabulary and listening comprehension measures have been found for adolescent and young adult groups (Hollow, 1955).

The male superiority is not restricted to single word presentation was indicated by a study of listening and reading

comprehension reported by King (1959). King's experiment involved a change-over trial of oral and reading paragraph comprehension, and his findings were that "boys tend to return higher mean scores on the oral test, and girls the visual test." Meanwhile, several studies using picture vocabulary test and the PPVT have reported that no sex differences were observed (Mehrabian, 1970; Harrison and Nadelman, 1972; McCarver and Ellis, 1972). Ali and Costello (1971), using the standard and modified PPVT with black children indicated also that no sex differences were found when the mean scores were compared.

Exceptions to the above findings have occurred. For example, studies with economically disadvantaged children by the Educational Testing Service (Shipman, 1971) showed girls surpassing boys on several language measures. Similarly, Achenbach (1969) reported that girls outperformed boys on the WISC vocabulary subtest. One hypothesis advanced to account for these differences blames the poorer performance by boys on the cumulative adverse effects of various physiological and environmental factors.

The constant identification of male superiority in aural (listening) vocabulary in the context of female expressive superiority and of higher female reading vocabulary raises interesting questions of the origin of such differences and their implications for individual differences within each gender. The failure to explain the phenomenon through biased sampling, interest bias or topic bias invites a search for an

alternative hypothesis -- such as developmental rather than organic explanation. McCarthy and Kirk (1963), in summarizing the research literature noted that a higher rate of language acquisition by girls than boys. This earlier linguistic development appears to be consistent with the more advanced physical development of girls at every age level. The most likely explanation of the male superior performance in listening vocabulary and comprehension, might be found in the relationship between language and thought in the course of development. Is it possible that the early command of expressive language by girls in fact alters the way in which language functions in learning? Do boys gain an advantage in this one aspect of language acquisition by a delay in their command of speech?

Such hypotheses and their deductions could be tested through further studies using the APVT and other vocabulary tests with Arabic-speaking LEP elementary schoolchildren in the United States and other Arabic-speaking countries. The most promising outcome of such studies would be a clear understanding of the language learning process and the active process of listening.

Table 1

APVT - Standardization Sample
According to Grades and Gender
(N=1500)

Grade	Female	Male	Total
Kindergarten	150	150	300
First Grade	200	200	400
Second Grade	200	200	400
Third Grade	200	200	400
Total	750	750	1500

Table 2

APVT - Standardization Sample
According to Age and Gender
(N=1500)

Age Groups (yrs. & mons.)	Female	Male	Total
5-0 - 5-5	57	59	116
5-6 - 5-11	62	68	130
6-0 - 6-5	57	57	108
6-6 - 6-11	118	104	222
7-0 - 7-5	94	100	194
7-6 - 7-11	100	102	202
8-0 - 8-5	105	103	208
8-6 - 8-11	99	110	209
9-0 - 9-5	58	53	111
Total	750	750	1500

Table 3

Differences in the Means of the APVT Raw Scores According to Age and Gender for the Total Standardization Sample (N=1500)

Age Groups (yrs. & mons.)	Female Mn	Female SD	Male Mn	Male SD	t
5-0 - 5-5 (N=116)	43.3	12.4 (N=57)	44.4	11.4 (N=59)	-0.5
5-6 - 5-11 (N=130)	54.0	11.5 (N=62)	57.2	15.6 (N=68)	-1.3
6-0 - 6-5 (N=108)	57.5	16.5 (N=57)	65.4	18.9 (N=51)	-2.3**
6-6 - 6-11 (N=222)	65.5	26.0 (N=118)	67.5	28.5 (N=104)	-0.5
7-0 - 7-5 (N=194)	72.9	28.7 (N=94)	67.5	25.7 (N=100)	1.5
7-6 - 7-11 (N=202)	81.0	32.0 (N=100)	83.0	23.4 (N=102)	-0.5
8-0 - 8-5 (N=208)	96.0	25.7 (N=105)	88.3	28.8 (N=103)	2.0*
8-6 - 8-11 (N=209)	96.2	23.7 (N=99)	96.8	28.3 (N=110)	-0.12
9-0 - 9-5 (N=111)	101.0	22.5 (N=58)	98.0	26.5 (N=53)	0.8

*$p \leq .05$
**$p \leq .01$

Table 4

Differences in the Means of the APVT Raw Scores According to Grade and Gender for the Total Standardization Sample (N=1500)

Grade	Female Mn	Female SD	Male Mn	Male SD	t
Kindergarten (N=300)	51.6 (N=150)	13.4	54.4 (N=150)	16.3	-1.5*
First Grade (N=400)	65.0 (N=200)	25.8	65.4 (N=200)	27.0	-0.1
Second Grade (N=400)	82.8 (N=200)	30.2	82.0 (N=200)	24.7	0.2
Third Grade (N=400)	99.7 (N=200)	24.2	96.5 (N=200)	28.3	1.2

*$p \leq .05$

Table 5

Differences in the Means of the APVT Raw Scores According to Gender, Grade and School-type for the Total Standardization Sample (N=1500)

	Female		Male		
Government Schools	Mn	SD	Mn	SD	t
First Grade (N=260)	65.6 (N=130)	23.7	58.2 (N=130)	25.8	2.4**
Second Grade (N=260)	73.7 (N=130)	30.0	77.0 (N=130)	23.5	-1.0
Third Grade (N=260)	95.7 (N=130)	26.7	88.7 (N=130)	28.4	2.0*
Private Schools					
Kindergarten (N=300)	51.6 (N=150)	13.4	54.2 (N=150)	16.3	-1.5*
First Grade (N=100)	68.0 (N=50)	32.4	82.6 (N=50)	23.7	-2.6**
Second Grade (N=100)	107.4 (N=50)	16.7	98.7 (N=50)	20.2	2.4*
Third Grade (N=100)	110.0 (N=50)	14.2	113.5 (N=50)	21.6	-1.2
UNRWA Schools					
First Grade (N=40)	52.8 (N=20)	17.5	67.5 (N=20)	23.8	-2.2*
Second Grade (N=40)	79.8 (N=20)	26.0	75.2 (N=20)	23.0	0.6
Third Grade (N=40)	102.0 (N=20)	20.1	105.4 (N=20)	20.4	-0.5

*$p \leq .05$
**$p \leq .01$

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